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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/762,931

01/21/2004

David Louis Heiner

ILLINC.066A

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7590

09/11/2008

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EXAMINER

HYUN, PAUL SANG HWA

ART UNIT

PAPER NUMBER

1797

NOTIFICATION DATE

DELIVERY MODE

09/11/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/762,931	Applicant(s) HEINER ET AL.	
	Examiner PAUL S. HYUN	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) 20-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 June 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

REMARKS

Claims 1-28 remain pending with claims 20-28 having been withdrawn pursuant to a restriction requirement. In response to the Office action dated 12/11/07, Applicant amended claims 1 and 8-11.

The new Drawings and the amended Abstract filed by Applicant have been acknowledged. Consequently, the objections to the Abstract and the Drawings cited in the previous Office action have been withdrawn.

Claim Objections

Claim 1 is objected to because of the following informalities:

Line 4 of claim 1 recites the limitation "a reagents".

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims **1-10 and 13-19** are rejected under 35 U.S.C. 103(a) as being unpatentable over Balch (US 6,083,763) in view of Becker et al. (US 6,485,913 B1).

Balch discloses an automated molecular analyzer (see Figs. 1 and 9). The analyzer can be used to conduct nucleotide synthesis (see lines 25-45, col. 21). The analyzer comprises a microplate comprising an array of wells (see lines 40-50, col. 4), a dispensing system for delivering reagents to the wells of the microplate (see lines 60-63, col. 5 and claim 1), a light source (e.g. UV lamp, laser) pivotally mounted on one side of a viewing window for exciting the contents of the wells (see lines 35-40, col. 28), a CCD camera positioned beneath the viewing window to obtain images of the wells (see lines 14-50, col. 4), and a software program for providing automated filtering, thresholding, labeling, statistical analysis and quantitative graphical display of each well within seconds (see lines 25-34, col. 6). Because the software program produces quantitative graphical display of each well and performs thresholding, it is evident that the software program determines a value associated with the extent of the reaction in each well and it is capable of monitoring the progress of the reaction in each well.

The analyzer disclosed by Balch differs from the claimed invention in that Balch does not disclose a program that can correspond the functions of the dispensing with the progress of the reaction in each well.

Becker et al. disclose an automated system for performing polynucleotide synthesis reactions. The system comprises a microplate (see line 55, col. 15), a CCD for obtaining images of the wells of the microplate, a dispensing system, a program for analyzing the signals of the CCD to determine the extent of the reaction in each well, and a program that synchronizes the functions of the dispensing system with the progress of the reaction in each well (see lines 1-13, col. 27). The dispensing system is

configured to dispense a reagent to terminate the progress of the reaction, or to facilitate the next step of the synthesis reaction. In light of the disclosure of Becker et al., it would have been obvious to one of ordinary skill in the art to provide the analyzer disclosed by Balch with a program that can synchronize the functions of the dispensing system with the progress of the reaction in each well to optimize the efficiency of the system. Likewise, it would have been obvious to configure the dispensing system to discontinue processing wells that do not exhibit a signal (i.e. no synthesis reaction) to minimize time and reagent consumption.

With respect to claim 4, Balch does not disclose the use of an array of LEDs as the light source. Becker et al. disclose the use of an array of LEDs to excite the samples in the wells of the microplate (see lines 25-35, col. 25 and line 38, col. 36). In light of the disclosure, it would have been obvious to use an array of LEDs as the light source in the system disclosed by Balch since diodes are much cheaper than laser.

With respect to claim 9, Balch does not disclose a system that removes fluids from the wells of the microplate. Becker et al. disclose a device for removing liquids from the wells of the microplate (see lines 36-56, col. 23). The device can transfer the aspirated fluid to another target site or a waste chamber. In light of the disclosure of Becker et al., it would have been obvious to one of ordinary skill in the art to provide the system disclosed by Balch with a device that can remove fluids from the wells of the microplate.

With respect to claim 10, although Balch does not explicitly disclose that the analyzer can write the data derived by the software program to a data storage location,

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it would have been obvious, if not apparent, to enable the analyzer to do so to enable one to access the data at a later time. It is well known in the art that computers are capable of saving data to a storage device.

Claim **11** is rejected under 35 U.S.C. 103(a) as being unpatentable over Balch in view of Becker et al. as applied to claims 1-10 and 13-19, and further in view of Eyster et al. (US 2003/0207441 A1).

Although Balch does not explicitly disclose that the analyzer comprises a means for generating a warning message, given that the analyzer is adapted to perform thresholding of the images, it would have been obvious to one of ordinary skill in the art to provide the analyzer with a means for generating a warning message if values corresponding to the quality of the images or the progress of the reactions fall outside the predetermined threshold values. Nonetheless, Eyster et al. disclose an apparatus for measuring the concentration of an analyte of interest. The apparatus comprises an array of sample, a light source for inducing a signal from the array of sample, a CCD camera for producing an image of the signal (see [0077]), and a means for displaying a message if the measurement values derived from the wells deviate from a control value (see [0102]). In light of the disclosure of Eyster et al., it would have been obvious to one of ordinary skill in the art to provide the modified Balch analyzer with a means that can generate a message if measurement values derived from the wells deviate from a control value so that the user can determine the source of the deviation, whether it be an error in the CCD or the protocol of the experiment.

Claim **12** is rejected under 35 U.S.C. 103(a) as being unpatentable over Balch in view of Becker et al. as applied to claims 1-10 and 13-19, and further in view of Dower et al. (US 5,639,603).

Neither Balch nor Becker et al. disclose a centrifuge rotor associated with the liquid removing device.

Dower et al. disclose an automated apparatus for conducting synthesis reactions in a microplate wherein the apparatus comprises an aspirator for removing fluid from the wells of the microplate. The apparatus can further comprise a centrifuge for separating the contents of a reaction vessel prior to aspirating those contents (see lines 42-59, col. 42). In light of the disclosure of Dower et al., it would have been obvious to one of ordinary skill in the art to provide a centrifuge to the modified Balch analyzer so that the contents of the wells of the microplate can be separated prior to removing fluid from the wells.

Response to Arguments

Applicant's arguments with respect to the claims have been considered but are moot in view of the new grounds of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PAUL S. HYUN whose telephone number is (571)272-8559. The examiner can normally be reached on Monday-Friday 8AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on (571)-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Paul S Hyun/
Examiner, Art Unit 1797

/Jill Warden/
Supervisory Patent Examiner, Art Unit 1797